

**What is claimed is:**

1           1. An electric power steering device comprising:

2                   a rack bar converting a rotational motion of a steering shaft to a longitudinal,  
3 linear motion and changing a steering angle;

4                   a motor rotationally driving a motor shaft based on a steering torque generated by  
5 said steering shaft, said motor shaft forming a diagonal intersection with said rack bar; and

6                   drive transmission means transmitting a rotational drive from said motor shaft to  
7 said rack bar as an auxiliary propulsion force;

8                   said drive transmitting means comprising:

9                   a drive gear rotating in tandem with said motor shaft and formed as a bevel gear with  
10 linearly extending teeth;

11                  a ball screw mechanism disposed co-axial with said rack bar and converting rotational motion  
12 to linear motion;

13                  and a driven gear rotating in tandem with a nut of said ball screw mechanism,  
14 meshing with and moving in tandem with said drive gear, and formed as a bevel gear with linearly  
15 extending teeth; and

16                  backlash for said drive gear or said driven gear or backlash between said drive  
17 gear and said driven gear can be adjusted in a continuous, non-stepped manner.

1           2.       The electric power steering device as described in claim 1, wherein at least one of  
2 said drive gear and said driven gear is secured after being moved in an axial direction.

1           3.       The electric power steering device as described in claim 2, wherein said motor  
2 shaft and said drive gear form one of a serration fit and a spline fit, and said drive gear is rotatably  
3 supported by an inner housing secured to said housing after being moved in an axial direction  
4 relative to said housing.

1           4.       The electric power steering device as described in claim 2, wherein said nut and  
2           said driven gear are integral within said housing, and said driven gear is rotatably supported by an  
3           inner housing secured to said housing after being moved in an axial direction relative to said  
4           housing.

1           5.       The electric power steering device as described in claim 1, wherein at least one of  
2           said teeth of said drive gear and said teeth of said driven gear is movable along a pitch circ

1           6.       The electric power steering device as described in claim 1, wherein at least one of  
2           a section of said teeth of said drive gear and a section of said teeth of said deiven gear is movable  
3           along a pitch circle.

1           7.       An electric power steering device as described in claim 5, wherein at least one of  
2           said drive gear and said driven gear is formed from a first gear serving as a section of a teeth face,  
3           a second gear serving as a remaining section of a teeth face, and biasing means biasing said first  
4           gear and said second gear toward or away from each other along a pitch circle.

1           8.       An electric power steering device as described in claim 6 wherein at lest one of  
2           said drive gear and said driven gear is formed from a first gear serving as a section of a teeth face,  
3           a second gear serving as a remaining section of a teeth face, and biasing means biasing said first  
4           gear and said second gear toward or away from each other along a pitch circle.

1           9.       An electric power steering device as described in claim 2, wherein said housing  
2           includes a grease reservoir, disposed below said drive gear and said driven gear, storing grease.

1           10.      An electric power steering device as described in claim 3, wherein said housing  
2           includes a grease reservoir, disposed below said drive gear and said driven gear, storing grease.

1           11.     An electric power steering device as described in claim 4, wherein said housing  
2 includes a grease reservoir, disposed below said drive gear and said driven gear, storing grease

1           12.     An electric power steering device as described in claim 5, wherein said housing  
2 includes a grease reservoir, disposed below said drive gear and said driven gear, storing grease.

1           13.     An electric power steering device as described in claim 6, wherein said housing  
2 includes a grease reservoir, disposed below said drive gear and said driven gear, storing grease.

1           14.     An electric power steering device as described in claim 7, wherein said housing  
2 includes a grease reservoir, disposed below said drive gear and said driven gear, storing grease.

1           15.     An electric power steering device as described in claim 8, wherein said housing  
2 includes a grease reservoir, disposed below said drive gear and said driven gear, storing grease

1           16.     An electric power steering device as described in claim 1, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect

1           17.     An electric power steering device as described in claim 2, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1           18.     An electric power steering device as described in claim 3, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1            19.     An electric power steering device as described in claim 4, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1            20.     An electric power steering device as described in claim 5, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1            21.     An electric power steering device as described in claim 6, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1            22.     An electric power steering device as described in claim 7, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1            23.     An electric power steering device as described in claim 8, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1            24.     An electric power steering device as described in claim 9, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1            25.     An electric power steering device as described in claim 10, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1           26.     An electric power steering device as described in claim 11, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1           27.     An electric power steering device as described in claim 12, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1           28.     An electric power steering device as described in claim 13, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1           29.     An electric power steering device as described in claim 14, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.

1           30.     An electric power steering device as described in claim 15, wherein a seal is  
2 disposed between said ball screw mechanism and said drive gear and said driven gear to provide  
3 a sealing effect.